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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,658	01/16/2004	Marc Elliot Rothenberg	CMC -162	8032

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EXAMINER	
BUNNER, BRIDGET E	
ART UNIT	PAPER NUMBER
1647	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/759,658	ROTHENBERG, MARC ELLIOT	
	Examiner	Art Unit	
	Bridget E. Bunner	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-13 and 15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-13 and 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *Appendices B-D*.

DETAILED ACTION

Status of Application, Amendments and/or Claims

The amendment of 14 February 2007 has been entered in full. Claims 11 and 12 are amended. Claims 1-10, 14, and 16-32 are cancelled.

Claims 11-13 and 15 are under consideration in the instant application.

Withdrawn Objections and/or Rejections

1. The objection to the specification at pages 2-3 of the previous Office Action (14 November 2006) is *withdrawn* in view of the amended specification (14 February 2007).

Claim Objections

2. Claim 11 is objected to because of the following informalities:

2a. Claim 11, the beginning of line 6, recites "pulomonary pulmonary". It appears that the misspelled term "pulomonary" was not crossed out in the amendment filed 14 February 2007.

Appropriate correction is required.

35 USC § 112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11-13 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The basis for these rejections are set forth at pages 3-4 of the previous Office Action (14 November 2006).

4. The terms "pulmonary inflammatory process" and "chronic repair process" in claims 11-13 and 15 are relative terms which render the claims indefinite. The terms "pulmonary inflammatory process" and "chronic repair process" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It cannot be determined what is encompassed by the terms "pulmonary inflammatory process" and "chronic repair process". For example, do the terms encompass diseases, disorders, conditions, pathways? The basis for this issue is set forth at page 3 of the previous Office Action (14 November 2006).

Applicant's arguments (14 February 2007), as they pertain to the rejections have been fully considered but are not deemed to be persuasive for the following reasons.

At page 4 of the Response, Applicant disagrees and provides a declaration under 37 C.F.R. § 1.132 by Dr. Marc Rothenberg. Applicant argues that one skilled in the art would recognize the requisite hallmarks of pulmonary inflammation and chronic repair processes such that the claims are not rendered indefinite. Applicant states that the specification at page 17 and 21s, discloses that RELMα and RELMβ administration to lungs of mice resulted in the presence of perivascular and peribronchial inflammatory cell infiltrates, and increased mucus positive cells. Applicant adds that experimentally induced pulmonary inflammation in mice resulted in induction of approximately 500 genes in the lung.

Applicant's arguments and the declaration under 37 CFR 1.132 filed 14 February 2007 have been fully considered but are found to be insufficient to overcome the rejection of claims 11-13 and 15. Specifically, the specification and the claims do not clearly define the terms

"pulmonary inflammatory process" and "chronic repair process". Although Applicant indicates that RELMα and RELMβ administration to lungs of mice resulted in the presence of perivascular and peribronchial inflammatory cell infiltrates, and increased mucus positive cells, there is no nexus in the specification indicating that these observations are indicative of or are hallmarks of a "pulmonary inflammatory process" or "chronic repair process". The claims must independently define the invention for which patent protection is sought. In the instant case, one of skill in the art would not be apprised of the metes and bounds of the steps/elements/disorders/pathways of a "pulmonary inflammatory process" or "chronic repair process".

Regarding the declaration under 37 C.F.R. § 1.132, Dr. Rothenberg does not base his opinion of the definitions of "pulmonary inflammatory process" and "chronic repair process" on any particular facts other than his own considerable experience in the field. Affidavits or declarations are provided as evidence and must set forth facts, not merely conclusions. In re Pike and Morris, 84 USPQ 235 (CCPA 1949). The Examiner was unable to locate art-recognized definitions of "pulmonary repair process" and "chronic repair process" in the prior art literature. Also, Applicant's arguments and the declaration of Dr. Rothenberg make no distinction between the meaning of "pulmonary repair process" and "chronic repair process". Yet, from the claim language, one skilled in the art would interpret that these terms are different and have separate meanings.

5. Claims 11-13 and 15 are indefinite because the step in claim 11, lines 6-7 does not match or clearly relate back to the preamble. For instance, the preamble in claim 11 recites "a

physiological assessment method" while the last step recites "an increased level of at least one of RELMα or RELMβ indicates a pulmonary inflammatory process or chronic repair process". (Please note that this issue could be overcome by amending the preamble of claim 11 to recite, for example, "A physiological assessment method for determining the presence of a pulmonary inflammatory process or chronic repair process in a patient comprising...".) The basis for this issue is set forth at page 4 of the previous Office Action (14 November 2006).

Applicant indicates that the claims have been amended to overcome this rejection.

Applicant's argument (14 February 2007), as it pertains to the rejection has been fully considered but is not deemed to be persuasive for the following reasons. Although Applicant indicates that the claims have been amended to overcome this rejection, the last line of claim 11 still does not match or clearly relate back to the preamble.

6. The term "clinical status" in claims 11-13 and 15 is a relative term which renders the claims indefinite. The term "clinical status" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear what is encompassed by this term. For example, disease diagnosis? Disease progression? The basis for this issue is set forth at page 4 of the previous Office Action (14 November 2006).

At page 4 of the Response, Applicant disagrees and provides a declaration under 37 C.F.R. § 1.132 by Dr. Marc Rothenberg. Applicant contends that regarding clinical status, one skilled in the art would know that it describes the patient as either having or not having some degree of pulmonary inflammatory process or a chronic repair process. The declarant also states

that using the teachings in the specification, one skilled in the art would appreciate that "clinical status" describes a process using RELMα and RELMβ levels to determine the presence of a pulmonary inflammatory process or chronic repair process in patients.

Applicant's argument and the declaration under 37 CFR 1.132 filed 14 February 2007 have been fully considered but are insufficient to overcome the rejection of claims 11-13 and 15. Specifically, the specification and the claims do not clearly define the term "clinical status". The claims must independently define the invention for which patent protection is sought. Regarding the declaration under 37 C.F.R. § 1.132, Dr. Rothenberg does not base his opinion of the definition of "clinical status" on any particular facts other than his own considerable experience in the field. Affidavits or declarations are provided as evidence and must set forth facts, not merely conclusions. In re Pike and Morris, 84 USPQ 235 (CCPA 1949).

Claim Rejections - 35 USC § 112, first paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 11-13 and 15 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of determining allergic pulmonary inflammation in a subject comprising (a) measuring RELMα mRNA or protein expression or RELMβ mRNA expression in a biological sample isolated from a subject, wherein the biological sample is lung fluid, lung biopsy, or bronchoalveolar fluid and (b) comparing RELMα mRNA or protein expression or RELMβ mRNA to normal lung, wherein an increased level of RELMα mRNA or

protein expression or RELMβ mRNA as compared to normal lung indicates the presence of allergic pulmonary inflammation, *does not reasonably provide enablement for* a physiological assessment method comprising determining a level of at least resistin-like molecule α (RELMα) or resistin-like molecule β (RELMβ) in a pulmonary tissue selected from the group consisting of lung fluid, lung biopsy, sputum, mucus, nasal washings, bronchoalveolar fluid, respiratory tract tissue, respiratory tract fluid, blood, and combinations thereof, of a patient to assess a patient clinical status parameter indicative of a pulmonary disease wherein an increased level of at least RELMα or RELMβ indicates a pulmonary inflammatory process or chronic repair process in the patient. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The basis for this rejection is set forth at pages 4-8 of the previous Office Action (14 November 2006).

Applicant's arguments (14 February 2007), as they pertain to the rejections have been fully considered but are not deemed to be persuasive for the following reasons.

(i) At the bottom of page 4 through the top of page 5 of the Response, Applicant asserts that assessment methods for determining RELMα and RELMβ levels in lung tissue from mice with experimentally induced pulmonary inflammation have been disclosed. Applicant states that the specification (pages 17-18) includes data evidencing significantly increased levels of RELMα and RELMβ mRNA from pulmonary tissue in an animal model of asthma. Applicant disagrees that undue experimentation would be required to determine RELMβ protein expression levels in patient tissues. Applicant states that protein expression is readily determined (such as by Western blot analysis), not requiring undue experimentation by one skilled in the art.

Applicant's arguments have been fully considered but are not found to be persuasive. As discussed in the previous Office Action, the specification of the instant application teaches that the level of mRNA for RELMα and RELMβ is evaluated in lung from mice challenged with different allergens in different models of allergen-induced asthma (pg 7, lines 10-24 through pg 10; pg 17). The specification discloses that expression of RELMα and RELMβ mRNA is significantly increased during allergen induced asthma compared to control mice by measuring lung fluid, lung biopsy, or bronchoalveolar fluid (pg 16, lines 22-24; pg 17, lines 10-24 through pg 18; Figures 1-2). However, the specification of the instant specification does not teach any methods or working examples that indicate an increased level of RELMα or RELMβ in all possible pulmonary tissues of a patient is associated with a patient's clinical status of all possible pulmonary diseases or indicates a pulmonary inflammatory process or chronic repair process in the patient. There is no guidance in the specification indicating that RELMα and RELMβ are expressed in blood, sputum, mucus, nasal washings, respiratory tract tissue, and respiratory tract fluid. Undue experimentation would be required of the skilled artisan to (1) determine the levels of RELMα and RELMβ in blood, sputum, mucus, nasal washings, respiratory tract tissue, and respiratory tract fluid, and (2) associate those levels with a pulmonary disease and pulmonary inflammatory process or chronic repair process in a patient.

There is also little or no guidance in the specification indicating which specific pulmonary diseases and pulmonary inflammatory processes/chronic repair processes are to be assessed or evaluated in the patient. As discussed in the previous Office Action, relevant literature teaches that there are several diseases related to the lungs, including asthma, emphysema, chronic obstructive pulmonary disease, cystic fibrosis, and pulmonary arterial

hypertension, among others (see for example, Appendix A attached to the previous Office Action). Applicant's single example in the specification of measuring an increased level of mRNA for RELMα and RELMβ in mice with allergen-induced asthma is not predictive of indicating all possible pulmonary inflammatory processes, chronic repair processes or pulmonary diseases. For example, various pulmonary diseases may have different pathophysiologies, unrelated to inflammation. In patients with asthma, the inside walls of the airways are inflamed, making them sensitive to allergens and irritants (see Appendix B attached to the instant Office Action). However, in cystic fibrosis, mucus builds up in the patient's lungs, blocking the airways. Bacteria may grow, leading to serious lung infections (see Appendix C attached to the instant Office Action). Also, bronchiectasis is a lung disease that results from infection or other condition that injures the walls of the airways in the lungs (see Appendix D attached to the instant Office Action). According to MPEP § 2164.06, "the guidance and ease in carrying out an assay to achieve the claimed objectives may be an issue to be considered in determining the quantity of experimentation needed". In this case, Applicant's single example in the specification of measuring an increased level of mRNA for RELMα and RELMβ in mice with allergen-induced asthma is not adequate guidance, but is merely an invitation to the artisan to use the current invention as a starting point for further experimentation. The skilled artisan must resort to trial and error experimentation to determine which pulmonary diseases and pulmonary inflammatory processes or chronic repair processes are associated with an increased level of RELMα or RELMβ. Such trial and error experimentation is considered undue.

Additionally, as was found in Ex parte Hitzeman, 9 USPQ2d 1821 (BPAI 1987), a single embodiment may provide broad enablement in cases involving predictable factors such as

mechanical or electrical elements, but more will be required in cases that involve unpredictable factors such as most chemical reactions and physiological activity. See also In re Fisher, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970); Amgen Inc. v. Chugai Pharmaceutical Co. Ltd., 927 F.2d 1200, 1212, 18 USPQ2d 1016, 1026 (Fed. Cir.), cert. denied, 502 U.S. 856 (1991). The present invention is unpredictable and complex wherein one skilled in the art may not necessarily assess a patient's clinical status indicative of a pulmonary disease or indicate a pulmonary inflammatory process/chronic repair process by determining the level of RELMβ protein. The specification provides little or no guidance as to how to measure RELMα or RELMβ qualitatively or functionally, as required by claim 15. Furthermore, undue experimentation would required of one skilled in the art to determine RELMβ *protein* expression levels in the tissue of a patient, as required by claim 13. The state of the art is such that protein expression levels are not predictable from the mRNA expression levels, as evidenced by Lilley et al, King et al., and Haynes et al. (cited by the Examiner in the previous Office Action). Although Applicant argues that RELMβ can be determined by Western blot analysis, this is merely an invitation to the artisan to use the current invention as a starting point for further experimentation.

Proper analysis of the Wands factors was provided in the previous Office Action. Due to the large quantity of experimentation necessary to determine an association between an increased level of RELMα or RELMβ in blood, sputum, mucus, nasal washings, respiratory tract tissue, and respiratory tract fluid of a patient and a patient's clinical status of all possible pulmonary diseases or to indicate a pulmonary inflammatory process or chronic repair process in the patient; the lack of direction/guidance presented in the specification regarding the same, the absence of

working examples directed to the same, the complex nature of the invention, and the breadth of the claims which fail to recite limitations as to the type of pulmonary disease/ pulmonary inflammatory process/chronic repair process, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention.

8. Claims 11-13 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The basis for this rejection is set forth at pages 8-11 of the previous Office Action of 14 November 2006.

Applicant's arguments (14 February 2007), as they pertain to the rejections have been fully considered but are not deemed to be persuasive for the following reasons.

(i) At page 5 of the Response, Applicant argues that the processes for determining pulmonary levels of RELMα and RELMβ in mice with experimentally induced pulmonary inflammation, using asthma as a model of pulmonary inflammation have been described. Applicant asserts that the description includes data from two different allergen inductions, evidencing significantly increased RELMβ mRNA expression in asthma (pages 17-18). Applicant points out that methods of induction, dosing and routes of administration are provided (pages 9-10). Applicant states that analytical processes and histological results are described. Applicant indicates that a declaration is attached that states one skilled in the art would appreciate that while the asthmatic lung is a hallmark of pulmonary disease having an

inflammatory process and a chronic repair process, it is not the only such disease. Applicant argues that cystic fibrosis and chronic obstructive pulmonary disease (COPD) are such diseases. Applicant argues that the claimed method is not limited to use on patients already having a diagnosis of a pulmonary disease. Applicant contends that the described asthmatic lung model illustrates a positive response, indicating usefulness of the assessment method.

Applicant's arguments and the declaration under 37 CFR 1.132 filed 14 February 2007 have been fully considered but are insufficient to overcome the rejection of claims 11-13 and 15. Specifically, Applicant has not provided evidence to demonstrate that the skilled artisan would be able to envision the infinite number of pulmonary diseases, pulmonary inflammatory processes, and chronic repair processes encompassed by the instant claims. As discussed in the previous Office Action, the brief description in the specification of one example of a pulmonary disease (asthma) is not adequate written description of an entire of genus pulmonary diseases and methods of determining the level of RELMα or RELMβ to assess a patient's clinical status for a genus of pulmonary diseases and a genus of pulmonary inflammatory processes or chronic repair processes. Although Applicant argues that other inflammatory diseases are contemplated within the scope of the claimed method (such as cystic fibrosis and chronic obstructive pulmonary disease), the description of these diseases in the instant specification could not be located by the Examiner. To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. However, in this case, in the absence of sufficient recitation of distinguishing identifying characteristics, the instant specification does not provide adequate written description for the claimed genus of methods of assessing/indicating pulmonary diseases and pulmonary

inflammatory processes or chronic repair processes. Therefore, only a method of determining the level of RELMα or RELMβ to indicate a specific pulmonary disease and/or specific pulmonary inflammatory process or chronic repair process, but not the full breadth of the claims meets the written description provision of 35 U.S.C. §112, first paragraph.

9. Claims 11-13 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection. The basis for this rejection is set forth at page 11 of the previous Office Action (14 November 2006).

At page 6 of the Response, Applicant argues that the disclosure of an asthmatic lung model is recognized by one skilled in the art as a prototypical pulmonary disease characterized by a pulmonary inflammatory process.

Applicant's argument has been fully considered but is not found to be persuasive. According to MPEP § 706.03(o), "[i]n amended cases, subject matter not disclosed in the original application is sometimes added and a claim directed thereto. Such a claim is rejected on the ground that it recites elements without support in the original disclosure under 35 U.S.C. 112, first paragraph, *Waldemar Link, GmbH & Co. v. Osteonics Corp.* 32 F.3d 556, 559, 31 USPQ2d 1855, 1857 (Fed. Cir. 1994); *In re Rasmussen*, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981)". As discussed at page 11 of the previous Office Action, the specification as originally filed does not provide adequate written description for "a pulmonary disease" and "a pulmonary

inflammatory process". These phrases are not expressly asserted, nor does they flow naturally from the specification. The Examiner could not find support for these phrases at pg 4, line 15 through pg 5, line 2, as indicated by Applicant in the 08 September 2006 Response.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 11-13 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Holcomb et al. (EMBO J 19(15): 4046-4055, 2000). The basis for this rejection is set forth at page 12 of the previous Office Action (14 November 2006).

Applicant's arguments (14 February 2007), as they pertain to the rejections have been fully considered but are not deemed to be persuasive for the following reasons.

Applicant argues that Holcomb et al. does not disclose the use of RELMα or RELMβ as a physiologic assessment method to assess patient parameters indicative of pulmonary disease. Applicant indicates that Holcomb et al. does not disclose the presence of RELMβ mRNA in the lung, whereas the instant claims require RELMβ in pulmonary tissue. Finally, Applicant disagrees with the Examiner's characterization of Holcomb et al. Applicant argues that Holcomb et al. does not disclose mRNA in BALF.

Applicant's arguments have been fully considered but are not found to be persuasive. First, Holcomb et al. teach that FIZZ1 (RELMα) is associated with pulmonary inflammation (see

title, abstract). More specifically, Holcomb et al. disclose that during allergic pulmonary inflammation, mFIZZ1 expression increases in hypertrophic, hyperplastic bronchial epithelium and in type II alveolar pneumoncytes (abstract; page 4048,col 1-2; page 4049). Holcomb et al. teach that expression of mFIZZ1 mRNA and protein in murine lungs with OVA-induced allergic inflammation is increased as compared to control (pg 4048, col 1, 2nd paragraph; pg 4049; Figures 4-6). Holcomb et al. teach the determination of FIZZ1 protein in bronchoalveolar lavage fluid (BALF) from mice with experimentally-induced allergic pulmonary inflammation (page 4053, bottom of column 1 through column 2). The Examiner acknowledges the Holcomb et al. does not disclose the presence of RELMβ DNA, mRNA, or protein. However, Holcomb et al. still meets the limitations of claims 11-13 and 15 because the claims are phrased using alternative language, i.e. determining a level of either RELMα or RELMβ. Since Holcomb et al. determine that increased levels of RELMα mRNA and/or protein in lung and BALF are associated with pulmonary inflammation, Holcomb et al. meet the limitations of the instant claims.

Conclusion

No claims are allowable.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bridget E. Bunner whose telephone number is (571) 272-0881. The examiner can normally be reached on 8:30-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback can be reached on (571) 272-0961. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BEB
Art Unit 1647
19 April 2007

Bridget E. Bunner

BRIDGET BUNNER
PATENT EXAMINER

Asthma

What Is ...

Causes

Who Is At Risk

Signs & Symptoms

Diagnosis

Treatments

Prevention

Living With

Key Points

Links

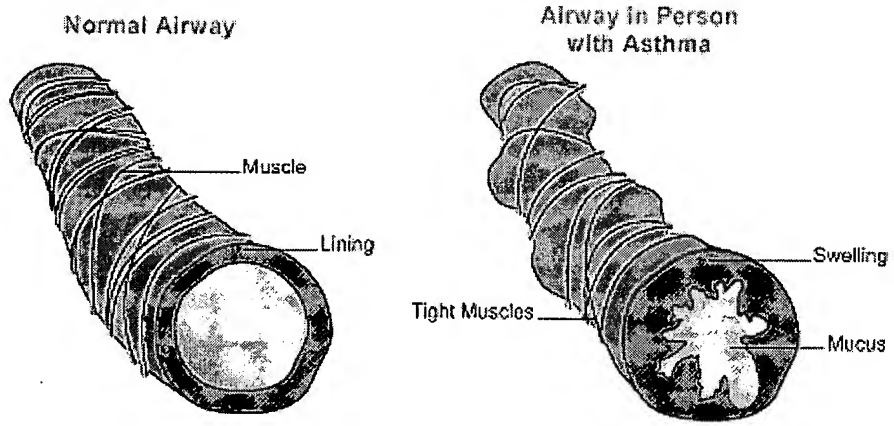
What Is Asthma?

Asthma (Az-muh) is a chronic disease that affects your airways. The airways are the tubes that carry air in and out of your lungs. If you have asthma, the inside walls of your airways are inflamed (swollen). The inflammation (IN-fla-MAY-shun) makes the airways very sensitive, and they tend to react strongly to things that you are allergic to or find irritating. When the airways react, they get narrower, and less air flows through to your lung tissue. This causes symptoms like wheezing (a whistling sound when you breathe), coughing, chest tightness, and trouble breathing, especially at night and in the early morning.

Asthma cannot be cured, but most people with asthma can control it so that they have few and infrequent symptoms and can live active lives.

When your asthma symptoms become worse than usual, it is called an asthma episode or attack. During an asthma attack, muscles around the airways tighten up, making the airways narrower so less air flows through. Inflammation increases, and the airways become more swollen and even narrower. Cells in the airways may also make more mucus than usual. This extra mucus also narrows the airways. These changes make it harder to breathe.

Asthma



Asthma attacks are not all the same—some are worse than others. In a severe asthma attack, the airways can close so much that not enough oxygen gets to vital organs. This condition is a medical emergency. People can die from severe asthma attacks.

So, if you have asthma, you should see your doctor regularly. You will need to learn what things cause your asthma symptoms and how to avoid them. Your doctor will also prescribe medicines to keep your asthma under control.

Taking care of your asthma is an important part of your life. Controlling it means working closely with your doctor to learn what to do, staying away from things that bother your airways, taking medicines as directed by your doctor, and monitoring your asthma so that you can respond quickly to signs of an attack. By controlling your asthma every day, you can prevent serious symptoms and take part in all activities.

If your asthma is not well controlled, you are likely to have symptoms that can make you miss school or work and keep you from doing things you enjoy. Asthma is one of the leading causes of children missing school.

Updated May 2006

Next Causes

Appendix C

Cystic Fibrosis

What Is ...

Other Names

Causes

Who Is At Risk

Signs & Symptoms

Diagnosis

Treatments

Living With

Key Points

Links

What Is Cystic Fibrosis?

Cystic fibrosis (CF) is an inherited disease of your mucus and sweat glands. It affects mostly your lungs, pancreas, liver, intestines, sinuses, and sex organs.

Normally, mucus is watery. It keeps the linings of certain organs moist and prevents them from drying out or getting infected. But in CF, an abnormal gene causes mucus to become thick and sticky.

The mucus builds up in your lungs and blocks the airways. This makes it easy for bacteria to grow and leads to repeated serious lung infections. Over time, these infections can cause serious damage to your lungs.

The thick, sticky mucus can also block tubes, or ducts, in your pancreas. As a result, digestive enzymes that are produced by your pancreas cannot reach your small intestine. These enzymes help break down the food that you eat. Without them, your intestines cannot absorb fats and proteins fully.

As a result:

- Nutrients leave your body unused, and you can become malnourished.
- Your stools become bulky.
- You may not get enough vitamins A, D, E, and K.
- You may have intestinal gas, a swollen belly, and pain or discomfort.

The abnormal gene also causes your sweat to become extremely salty. As a result, when you perspire, your body loses large amounts of salt. This can upset the balance of minerals in your blood. The imbalance may cause you to have a heat emergency.

CF can also cause infertility (mostly in men).

The symptoms and severity of CF vary from person to person. Some people with CF have serious lung and digestive problems. Other people have more mild disease that doesn't show up until they are adolescents or young adults.

Respiratory failure is the most common cause of death in people with CF.

Until the 1980s, most deaths from CF occurred in children and teenagers. Today, with improved treatments, people with CF live, on average, to be more than 35 years old. Research continues to look for:

- Better treatments
- A cure

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Bronchiectasis

What Is Bronchiectasis?

Bronchiectasis (bron-kee-ek'-tas-is) is a lung disease that usually results from an infection or other condition that injures the walls of the airways in your lungs. The airways are the tubes that carry air in and out of your lungs.

This injury is the beginning of a cycle in which your airways slowly lose their ability to clear out mucus. The mucus builds up and creates an environment in which bacteria can grow. This leads to repeated serious lung infections. Each infection causes more damage to your airways.

Over time, your airways become stretched out, flabby, and scarred. They can no longer move air in and out.

This can affect how much oxygen reaches your body organs. If your lungs cannot move enough oxygen into your body, bronchiectasis can lead to serious illness, including heart failure.

Bronchiectasis can affect just one section of one of your lungs or many sections of both lungs.

Bronchiectasis usually begins in childhood, but symptoms may not appear until months or even years after you have started having repeated lung infections.

There are two types of bronchiectasis:

- Congenital bronchiectasis usually affects infants and children. It results from a problem in the development of the lungs in the fetus.
- Acquired bronchiectasis occurs in adults and older children. It is more common.

Bronchiectasis cannot be cured, but with proper care, most people who have it can enjoy a good quality of life.

Other Names for Bronchiectasis

- Acquired bronchiectasis
- Congenital bronchiectasis

What Causes Bronchiectasis?

Bronchiectasis is caused by injury to the lower airways. This injury may be caused by another disease, including:

- Cystic fibrosis, which leads to almost half of the cases of bronchiectasis in the United States.
- Severe pneumonia.
- Whooping cough (uncommon because most people are now vaccinated against it).
- Tuberculosis (TB) and other similar infections.
- Immunodeficiency disorders, such as HIV infection and AIDS.
- Allergic bronchopulmonary aspergillosis, an allergic reaction to a fungus called aspergillus that causes swelling in the airways.
- Kartagener's Syndrome, a rare inherited disease that involves the cilia (sil'-ee-ah). These are small hair-like structures that line your airways and normally clear out mucus.
- Other disorders that affect the function of the cilia.

Other conditions that can injure the lower airways and lead to bronchiectasis include:

- Blockage of your airways by a growth or a noncancerous tumor
- Blockage of your airways by something you inhaled—for example, a piece of a toy or a peanut that you inhaled when you were a child
- Fungal infections

What Are the Signs and Symptoms of Bronchiectasis?

The most common signs and symptoms are:

- Daily cough, over months or years
- Daily production of large amounts of mucus, or phlegm (flem)
- Repeated lung infections
- Shortness of breath
- Wheezing
- Chest pain (pleurisy)

Over time, you may have more serious symptoms, including:

- Coughing up blood or bloody mucus
- Weight loss
- Fatigue
- Sinus drainage

Bronchiectasis can also lead to other serious health conditions, including:

- Collapsed lung
- Heart failure, if the disease advances to affect all parts of your airways
- Brain abscess

How Is Bronchiectasis Diagnosed?

There is no one specific test for bronchiectasis. Even in its later stages, the signs of the disease are similar to those of other conditions, so those conditions must be ruled out before a diagnosis can be made.

Your doctor may suspect bronchiectasis if you have a daily cough that produces large amounts of mucus.

Your doctor will determine if you have bronchiectasis by conducting a series of tests to:

- Identify any underlying causes that need to be treated
- Rule out other causes of your symptoms
- Determine the amount of damage to your lungs

The most commonly used tests to diagnose bronchiectasis are:

- Chest x ray. A chest x ray takes a picture of your heart and lungs. It can show infection and scarring of your airway walls.
- Computed tomography (CT) scan. This test provides a computer generated image of your airways and other tissue in your lungs. It has more detail than a regular chest x ray. A CT scan is the defining test for bronchiectasis. It can show how much damage has been done to the airways and where the damage is.

Other tests your doctor may conduct include:

- Blood tests. These tests can show if you have a disease or condition that can lead to bronchiectasis. They can also show if you have an infection or low levels of certain infection-fighting blood cells.
- Sputum culture. Sputum contains mucus and often pus, blood, or bacteria. Laboratory tests of a sample of your sputum can show if you have bacteria, fungi, or tuberculosis.
- Lung function tests. These tests measure how well your lungs move air in and out. These tests show how much lung damage you